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November 22, 1991

TO: Minerals File

FROM: Holland Shepherd, Senior Reclamation Specialist *AWF*

RE: Site Inspection, Bingham Pit Mine, Kennecott Utah Copper, M/035/002,
Salt Lake County, Utah

Date of Inspection: November 7, 1991

Time of Inspection: 9:00 a.m. to 5:00 p.m.

Conditions: Cold, wet, cloudy

Participants: Greg Fauquier, Al Nuttal, Fred Fox, Paul Rokich, Don Deines,
John Simmonson, Bruce Ream, Rob Hammond, Kennecott;
Holland Shepherd, Tony Gallegos, DOGM

Purpose: Evaluation of recent reclamation activities and discussion of future
dump design

Our first stop during this inspection was at the site of the old Arthur Concentrator. Demolition of the site began in the fall of 1988. The site is currently being backfilled and regraded by Gibbons and Reed contracting with Kennecott. All controlled wastes were inventoried and removed from the site during 1989 and 1990. The old concentrators and associated facilities have been demolished. The components have either been removed from the site or buried on-site. The operator hopes to complete seeding of the site by December 20, 1991.

The next stop on the inspection was at the site of the ongoing 4th line expansion. The operator is nearing completion of the expansion/upgrade. The Division had no concerns about the work or plans submitted, except for the 4th line test plot. This plot was not completed in the fashion described in the plan. The operator has been asked to amend this in the plan and told that the plan will not be approved until this has been accomplished.

The afternoon portions of the inspection involved a discussion with Kennecott mine engineers, Greg Fauquier, Rob Hammond, John Simmonson, and Bruce Ream, concerning the waste dumps and later an inspection of some of the dumps. The Division has been discussing the need to update the current dump design, with Kennecott, from a system which has been used for the last 50 years to something more compatible with current reclamation requirements. The dumps are currently quite high and steep, making future reclamation close to impossible to achieve.

Our discussions focused on the economics of changing the dump design to something that would allow for better reclamation. Basically Kennecott's argument is that it will become too expensive to mine if waste materials are hauled the extra distance needed to construct lower dumps. We have asked Kennecott personnel to generate some figures for us regarding this question. According to the operator, haulage costs equate to about 1/3 the cost of mining.

Kennecott has been experimenting with a new toe dump or wrap around dump (Code 28), which has been initiated about 250 feet from the top of the Code 30 dump. The new dump decreases the height and face angle of the Code 30 dump face which is about 900 feet at the angle of repose. The operator admitted that the reason for the new dump was to reduce the distance that material would run down the slope, thereby reducing the amount of dust produced. The Division of Air Quality has made this requirement. Nothing the Division has asked for, has motivated the operator to take this action.

The toe dump or wrap around dump, Code 28, was developed to reduce the run out distance of the dumped materials and increase the stability of the Code 30 dump. Development of Code 28 began in the fall of 1989 and is approximately 20% complete at this time. Construction of this dump is slow because Kennecott must wait 12-15 days between dumping. This intermission is for safety reasons, and allows the dump to settle.

Kennecott has experienced instability on Dump Code 30. This dump was not used for approximately 6 months and experienced some differential settling, another reason for the establishment of the Code 28 dump.

Kennecott developed a step-back dump, Code 3F, on top of the Code 30 dump. This dump was developed to provide Kennecott with a dump location for use during the dry months. The shorter slope distance at this dump allows Kennecott to dump here without creating large amounts of dust.

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The operator indicated that approximately 400,000 tons of waste material (total for the entire Bingham Pit site) is dumped over the side every month. Some of the dumps are less extreme than others; however, all the dumps are at angle of repose and no plans exist for future grading to a more gradual angle. The operator is dumping currently at Code 30, Marcom, Freeman 5, Code 20 and Code 8.

A major hurdle in addressing the question of dump reclamation, is the fact that the operator is not ready to reclaim extensive portions of the dumps. Apparently, because of the dynamic nature of the operation, retired areas have often been reactivated in the past. According to the operator, most of the site stands the possibility of being reactivated, depending on the needs of the operation. The Division had asked previously that the operator begin to reclaim those areas no longer of use to Kennecott. Some 8,000 acres of unreclaimed dump area currently exists on the site.

We left the engineer's meeting with the agreement that the Division would make no immediate decision concerning the dump design until further information could be obtained. The operator indicated that attempts would be made to reclaim portions of the dumps in their present configuration by experimenting with hydro mulching and various slope stabilizing techniques.

The dialogue concerning the final configuration of these dumps and reclamation potential should continue. The current dumping practice is unacceptable from a reclamation standpoint. No variance currently exists for exempting reclamation of the dumps. It is my recommendation that none be given.

jb
cc: Minerals Team
M035002